ADTRAN

3192 H4TU-C

JOB AID
61222404L1-22D
0311

3192 H4TU-C

CLEI: T1L56YSC_ _

CAUTION!
SUBJECT TO ELECTROSTATIC DAMAGE OR DECREASE IN RELIABILITY.
HANDLING PRECAUTIONS REQUIRED.

LED STATUS

DSL1/DSL2	●	Green	Loop 1/ Loop 2 synchronization achieved and signal is present. No errors currently detected, and SNR margin ≥ 3 dB.
	●	Red	Loop 1/ Loop 2 synchronization not achieved, in sync with errors, or SNR margin < 3 dB.
DSX	●	Green	DSX-1 signal present and no errors currently detected.
	●	Red	In framed mode, denotes loss of framing or loss of sync at the DSX-1 input. In unframed mode, denotes loss of signal DSX-1 input.
ALM	○	Off	No T1 alarms are active.
	●	Red	Loss of DSX-1 signal from the network.
	●	Yellow	Loss of DS1 signal from the CPE.
ESF/SF	○	Off	Unit has detected Unframed data.
	●	Yellow	Unit has detected ESF framing data.
	●	Green	Unit has detected SF framing data.
B8ZS/AMI	●	Yellow	Unit has detected B8ZS line coding data.
	●	Green	Unit has detected AMI line coding data.
LBK	○	Off	No local loopbacks active.
	●	Yellow	Local loopback active.

DSX EQ SPLITTING JACKS

TX DSX-1 transmit toward the local loop (intrusive)

RX DSX-1 receive from the local loop (intrusive)

DSX MONITOR JACKS

TX DSX-1 transmit toward the local loop (nonintrusive)

RX DSX-1 receive from the local loop (nonintrusive)

COMPLIANCE

WARNING: Up to –200 VDC might be present on telecommunications wiring. Ensure chassis ground is properly connected. The DSX-1 interface is intended for connection to intra-building wiring only.

This product is intended for installation in restricted access locations only and in equipment with a Type "B" or "E" enclosure.

Code	Input	Output
Power Code (PC)	F	C
Telecommunication Code (TC)	–	X
Installation Code (IC)	A	–

This product provides span powering voltage (negative only with respect to ground, –190 VDC nominal, GFI protection < 5 mA) and meets all requirements of Bellcore GR-1089-CORE (Class A2), and ANSI T1.418-2002. This product is NRTL Listed to the applicable UL standards.

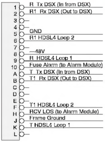
POWERING MODE

The H4TU-C provides –190 VDC span powering voltage and will provide powering to the H4Rs and the H4TU-R. The –190 VDC span powering voltage is provided on Loop 2.

DEFAULT PROVISIONING VALUES

Provisioning Options	Option Settings	Default Settings
1. DSX-1 Line Build Out	0-133 Feet 133-266 Feet 266- 399 Feet 399-533 Feet 533-655 Feet	0-133 Feet
2. DSX-1/DS1 Line Code	AMI, B8ZS	B8ZS
3. DSX-1/DS1 Framing	SF, ESF, Unframed, Auto	ESF
4. Forced Frame Conversion	Enabled, Disabled	Disabled
5. Smartjack Loopback	Enabled, Disabled	Enabled
6. Loopback Timeout	None, 120 Minutes	120 Minutes
7. Latching Loopback Mode	T1 (Disabled), FT1 (Enabled)	T1 (Disabled)
8. DS1 TX Level	0 dB, –7.5 dB, –15 dB	–7.5 dB
9. Span Power	Enabled, Disabled	Enabled
10. Customer Loss Indicator	AIS, AIS/CI, Loopback	AIS/CI
11. PRM Setting	None, SPRM, NPRM, Auto	Auto
12. Loop Atten Alarm Threshold	0 (Disabled) 1-99 dB	34 dB
13. SNR Margin Alarm Threshold	0 (Disabled) 1-15 dB	4 dB
14. Remote Provisioning	Enabled, Disabled	Enabled

H4TU-C EDGE CONNECTOR WIRING



■ For a complete Installation and Maintenance Practice (P/N 61222404L1-5): 877-457-5007, Faxback Document 885. Please have your fax number ready. ■

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HDSL4 TROUBLESHOOTING GUIDE

ADTRAN

PRICING AND AVAILABILITY 800.827.0807
TECHNICAL SUPPORT 800.728.8883
RETURN FOR REPAIR 258.963.8722
www.adtran.cnm
81222404L1-220

ADTRAN HDSL4 equipment is designed with troubleshooting-at-a-glance features. The following information provides suggestions for troubleshooting as a result of LED indications which are indicative of loop trouble.

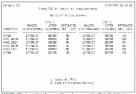
NOTE: Pressing "ESC" while on any screen will go back to the previous screen.

INOICATIONS ANO POSSIBLE CAUSES

DSL LED Red

Connect a terminal or PC to the RS-232 (DB-9) craft interface on the front panel. The terminal must be VT100 or compatible and set for 1.2 to 19.2 kbps, 8 data bits, no parity, 1 stop bit, no flow control. Select "3" from the ADTRAN HDSL4 Main Menu screen and "1" from the Span Status Screen. Verify the following conditions on the HDSL4 and T1 Detailed Status Screen:

- Margin ≥ 3 dB
- Attenuation ≤ 35 dB (1st segment)
  Attenuation ≤ 31 dB (2nd segment)
- No ES, SES, or UAS (Performance History Screen, Main Menu Selection 5)



NOTE: The insertion loss reading shown on the Detailed Status Screen is an approximation that is valid for some loops. Exercise caution when using this value.

If the above conditions do exist, the circuit should provide quality service; however, if any of the above conditions do not exist, a cable problem or excessive loss situation is probable, and more detailed cable testing should be done to verify all HDSL4 loop specifications are met. These conditions may also reflect intermittent cable faults or excessive noise impairments. If intermittent faults or noise impairments are suspected, review the Performance History Screen.

HOSL4 OEPLOYMENT GUIOELINES

The guidelines provided below apply to the segments of an HDSL4 circuit, as follows:

1st segment = between the H4TU-C and H4R

2nd segment = between two H4Rs or single H4R and H4TU-R

3rd segment = between the second H4R and the H4TU-R

These deployment guidelines provide the basics for HDSL4 circuit provisioning. If these parameters are met, then the circuit will provide quality service. If not, a cable problem or excessive loss situation is probable. In this case, a more detailed cable analysis is required to ensure that all HDSL4 loop specifications are met. These conditions may also be the result of intermittent cable faults or intermittent noise impairments. If intermittent problems are suspected, utilize the Performance History screen to assist in troubleshootiog.

1. All foops are nonloaded only
2. Any single bridged tap is limited to 2 kft.
3. Total bridged tap length is limited to 2.5 kft.
4. Bridge tap within 1000 feet of units may affect performance of the circuit
5. Margin ≥ 6 dB (Detailed Status Screen)
6. No ES, SES, or UAS (Performance History Screen)
7. Foreign Voltage DC (t-r, t-g, r-g) < 3 VDC
8. Insulation Resistance (t-r, r-g, t-g) > 3.5 MΩ
9. Impulse Noise ≤ –40 dBmF (measured with an F filter)
10. Wideband Noise ≤ –54 dBmF
11. Longitudinal Noise (Power influence) < 80 dBrnC OK; 80–90 dBrnc Marginal; > 90 dBrnc Unacceptable

Reoge Limits: 26 Geuge / 70°F / PIC	Recommended Maximum (DSL Assistant Green Zooe)
1st segment	10.5 kft.
2nd/3rd segment	10.55 kft.

Renge Limits: 24 Geuge / 70°F / PIC	Recommended Maximum (DSL Assistant Green Zone)
1st segment	15.25 kft.
2nd/3rd segment	15.05 kft.

Attenuation Limits Recommended Maximum (DSL Assistant Green Zone)	Upstream	Downstream
1st segment	31 dB	33 dB
2nd/3rd segment	30 dB	30 dB

NOTE: In three segment circuits (two H4Rs), individual segment resistance values must be verified. Refer to the HDSL4 Deployment Guidelines section of the Installation and Maintenance Practice (P/N 61222404L1-5x) for those guidelines.

LOOPBACK ANO CONTROL COOES

Pattern	Description	Requires Arming?
1in3	Loop down all units and disarm.	No
2in5	Arming Pattern, H4TU-R will loop up if Smartjack LB is enabled.	No
3in5	Disarm and loop down all units. Restores LB TMD after D5D6.	No
1in6	Network Arming Pattern. If Smartjack LB is enabled, HTU-R will loop toward network.	No
2in6	H4R LB to Network.	No
3in6	H4R LB to Network.	No
4in6	H4R LB to Customer.	No
5in6	H4R LB to Customer.	No
3in7	H4TU-R LB to Network.	No
4in7	H4TU-C LB to Network.	No
5in7	H4TU-R LB to Customer.	No
6in7	H4TU-C LB to Customer.	No
3F1E	H4TU-C LB to Customer.	No
3F02	H4TU-R LB to Customer.	No
3F04	H4R LB to Customer.	No
3F06	H4R LB to Customer.	No
6767	Disable span powering while present.	Yes
9393	Loop down H4TU-C, Repeaters - all loopbacks. Loop down H4TU-R - Cust LB always. Will only loop down H4TU-R Network LB if NIU is disabled. Does not disarm units if they are armed.	No
C741	H4R #1 loop up pattern. 10 bit error injection.	Yes
C742	H4TU-R loop up pattern. 20 bit error injection.	Yes
C754	H4R #2 loop up pattern. 200 bit error injection.	Yes
D3D3	H4TU-C loop up pattern. 231 bit error injection.	Yes
D5D5	Query Loopback Pattern (error injection) H4TU-C: 231 Errors, H4R #1: 10 Errors, H4R #2: 200 Errors, H4TU-R: 20 Errors	No
D5D6	Loopback Timeout Override: Disables LB timeout. Restores original LB timeout when unit is disarmed.	Yes
FF48	FDL Arming Pattern (ESF only). Arms all units, H4TU-R will LB to Network if NIU Enabled (if pattern sources at network).	No
FF24	FDL Disarm Pattern (ESF only). Loop down and disarm all units	No
FF1E	H4TU-C LB to Network. Will not loop up H4TU-C if H4TU-C already in LB to Customer.	No
FF02	H4TU-R LB to Network. Will not loop up H4TU-R if any unit already in LB to Customer.	No
FF04	H4R LB to Network.	No
FF06	H4R LB to Network.	No

WARRANTY

ADTRAN will replace or repair this product within the warranty period if it does not meet its published specifications or fails while in service. Warranty information can be found at www.adtran.com/warranty. U.S. and Canada customer Faxback: 877-457-5007, Document 414.

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